ABSTRACT

This invention discloses methods for identifying *Francisella tularensis* vaccine candidates. It enables identification of novel vaccine candidates and quality assurance for vaccine batches, assessment of protection in vaccinates and identification of the infecting agent in vaccinates. Mice were first vaccinated with *Brucella abortus* O-polysaccharide (OPS) vaccine. These animals were then given 10 LD_{50}s of *F. tularensis* live vaccine strain (LVS). Sixty percent (60%) of the vaccinated mice survived the multiple lethal doses. Sera were collected from these surviving mice and the antibodies were used to probe supernatant and cell lysates of live *F. tularensis* LVS cultures. Several *F. tularensis* components were identified only by the noted "survivor" antisera. Of these identified proteins, enzyme digestions and chemical oxidation suggest post-translational modifications of some proteins e.g. a 52 kDa glycoprotein, a 45 kDa lipoprotein and a 19 kDa nucleoprotein. The 52 kDa component caused nitrous oxide induction in tissue cultures at low concentrations, cell death at high concentrations. Vaccination with this gave partial protection while addition of other components acted synergistically to give enhanced protection from 250 LD_{50}s of *F. tularensis* LVS.